

wind



Monitoring report form (Version 03.1)

Monitoring report

Title of the project activity	Vaayu India Wind Power Project in Andhra Pradesh
Reference number of the project activity	4677
Version number of the monitoring report	1.0
Completion date of the monitoring report	11/02/2013
Registration date of the project activity	25/04/2011
Monitoring period number and duration of this monitoring period	Second monitoring period, 26/03/2012 to 25/12/2012 (Including first and last day)
Project participant(s)	Vaayu (India) Power Corporation Private Limited (Private Entity)
Host Party(ies)	India
Sectoral scope(s) and applied methodology(ies)	Sectoral Scope: 1 Energy industries (renewable / non-renewable sources) Methodology applied: "Consolidated methodology for grid-connected electricity generation from renewable sources – ACM0002 - Version 11"
Estimated amount of GHG emission reductions or net anthropogenic GHG removals by sinks for this monitoring period in the registered PDD	70,047 tonnes of CO ₂ e
Actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved in this monitoring period	96,662 tonnes of CO ₂ e

SECTION A. Description of project activity**A.1. Purpose and general description of project activity**

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Purpose of the project activity and the measures taken to reduce greenhouse gas emissions:

The purpose of the project activity is to utilize renewable wind energy for generation of electricity. In the absence of the project activity equivalent amount of electricity would have been generated from the existing grid connected power plants and planned capacity additions which are also largely fossil fuel based. Thus electricity generation from the project displaces the electricity generated from existing and planned power plant capacities in the southern grid whose emission intensities are represented by the Combined Margin Emission Factor of the Southern Grid, which predominantly uses fossil fuels and has grid emission of ~ 0.94515 tCO₂/MWh of electricity produced.

Vaayu (India) Power Corporation Private Limited (VIPCPL) has installed 50.4 MW wind farm in the state of Andhra Pradesh in India. Enercon (India) Limited ("Enercon") is the equipment supplier and the operations and maintenance contractor for the Project. The Project is owned by VIPCPL. There are 63 Wind Energy Convertors ("WEC's") of Enercon E-53 make with rated capacity 800 KW each. The generated electricity will be supplied to Electricity Distribution Company (DISCOM) under a long-term power purchase agreement (PPA). The expected operational lifetime of the project is for 20 years.

Brief description of the installed technology and equipment:

The technical specifications of the Enercon E-53 make WECs with rated capacity 800 KW are given below:

Main Specifications E-53	
Turbine model	Enercon E- 53
Rated power	800 KW
Rotor diameter	53 m
Hub height	75 m
Turbine Type	Gearless horizontal axis wind turbine with variable rotor speed
Power regulation	Independent electromechanical pitch system for each blade.
Cut in wind speed	2.5 m/s
Rated wind speed	12 m/s
Cut out Wind speed	28-34 m/s
Extreme Wind Speed	59.5 m/s
Rated rotational speed	32 rpm
Operating range rot. speed	12-29 rpm
Orientation	Upwind
No of Blades	3
Blade Material	Fibre Glass Epoxy reinforced with integral lightning protection
Gear box type	Gear less
Generator type	Synchronous generator
Braking	Aerodynamic
Output Voltage	400 V
Yaw System	Active yawing with 4 electric yaw drives with brake motor and friction bearing
Tower	74 m concrete

Enercon (India) Ltd has secured and facilitated the technology transfer for wind based renewable energy generation from Enercon GmbH, has established a manufacturing plant at Daman in India, where along with other components the "Synchronous Generators" using "Vacuum Impregnation" technology are manufactured.



Enercon E-53: Technology Diagram

Relevant dates for the project activity:

The first machine under the project activity was commissioned on 02/08/2010 and last machine was commissioned on 04/05/2011. The expected operational lifetime of the project is for 20 years. This is the second monitoring report associated with the project activity and the period covered under this monitoring report is from 26/03/2012 to 25/12/2012 (Including first and last day). The details of issuance of CERs for the previous monitoring periods are as follows:

Monitoring Period No.	Monitoring Period	CER Requested
First Issuance	25/04/2011 to 25/03/2012 (Inclusive of both days)	93,324

Total emission reductions achieved in this monitoring period

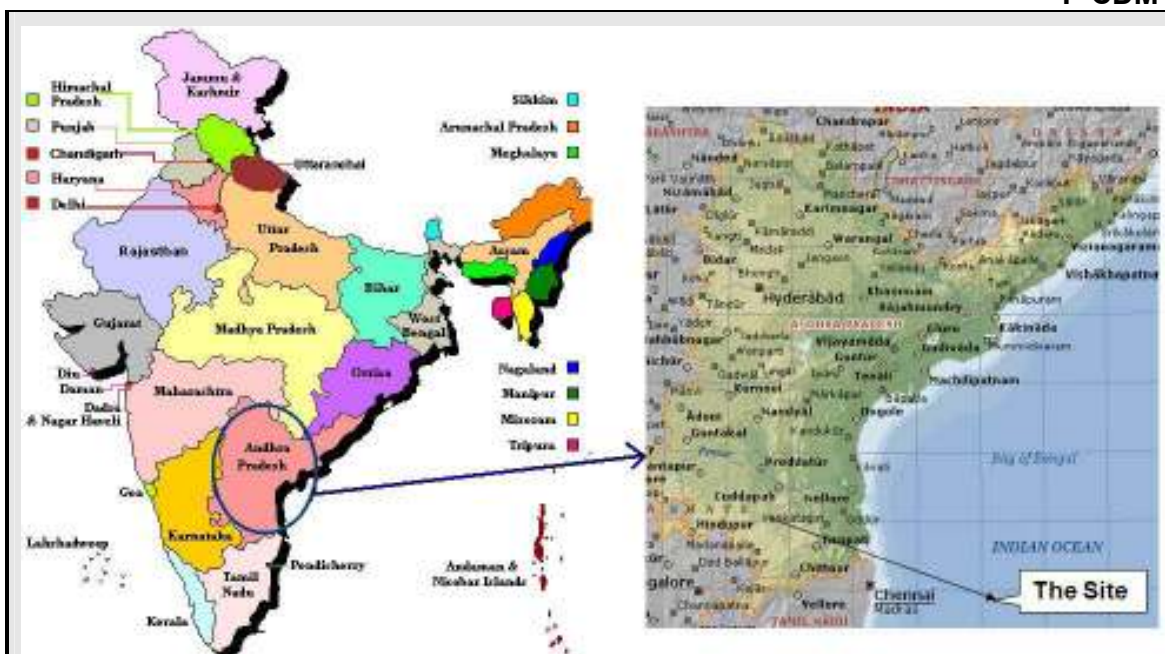
This is the second monitoring report for the project activity. The total emission reductions achieved under the monitoring period 26/03/2012 to 25/12/2012 (Including first and last day) is 96,662 tCO₂e.

A.2. Location of project activity

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- (a) *Host Party(ies);*
India
- (b) *Region/State/Province, etc.;*
Andhra Pradesh State
- (c) *City/Town/Community, etc.;*
Petnikota, Tummalapenta, Itikyala, Abdullapuram, Chintalayapalli, Venkatampalli & Bhogasamudram villages in Kurnol district in Indian State of Andhra Pradesh.
- (d) *Physical/ Geographical location.*

The detailed individual WECs location numbers and coordinates of project activity are provided in Appendix 1.



A.3. Parties and project participant(s)

Party involved (host) indicates a host Party)	Private and/or public entity(ies) project participants (as applicable)	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
Government of India (host)	Vaayu (India) Power Corporation Private Limited (Private Entity)	No

A.4. Reference of applied methodology

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Title: "Consolidated methodology for grid-connected electricity generation from renewable sources – Version 11"

Reference: Approved consolidated baseline and monitoring methodology ACM0002

Version: 11.0, EB 52

ACM0002 draws upon the following tools which have been used in the PDD:

- Tool to calculate the emission factor for an electricity system – Version 02
- Tool for the demonstration and assessment of additionality – Version 5.2

Further information with regards to the methodology / tools can be obtained at

<http://cdm.unfccc.int/methodologies/PAmethodologies/approved.html>

A.5. Crediting period of project activity

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The length of the Crediting period of the project activity as per registered PDD is 10 years (fixed) starting from 25/04/2011 to 24/04/2021(including first and last day). This is second CER verification for the monitoring period 26/03/2012 to 25/12/2012 (Including first and last day). There are no post-registration changes to the crediting period of the project activity.

SECTION B. Implementation of project activity**B.1. Description of implemented registered project activity**

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The project start date is 05th December 2009. The first machine under the project activity was commissioned on 02/08/2010 and last machine was commissioned on 04/05/2011. During the monitoring period the project activity was operated and monitored in accordance with the applicable baseline and monitoring methodology ACM0002 (ver.11) and registered PDD.

The commissioning schedule of all the WECs under the project activity has been provided in Appendix 2.

There are no changes that have happened in project activity which may impact the applicability of the methodology. Enercon operation and maintenance activities are ISO certified and all the events are recorded in the log book available at the project site. Referring to the data available it can be inferred that there have not been any major special events for any of the machines that are included in the project activity. As a part of regular maintenance the machines are stopped for mechanical and electrical maintenance for 16 to 18 hours annually and for visual inspection for 6 to 7 hours quarterly.

B.2. Post registration changes**B.2.1. Temporary deviations from registered monitoring plan or applied methodology**

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No deviations have been there in the applied methodology.

B.2.2. Corrections

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There are no corrections from the registered PDD during this monitoring period.

B.2.3. Permanent changes from registered monitoring plan or applied methodology

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The monitoring plan has been revised. The revision in monitoring plan was done to change in calibration/testing frequency from once each year to once in five years as calibration frequency for monitoring equipment which is not under control of PP. The revision for monitoring plan was approved by UNFCCC on 22/11/2012 (Link: <http://cdm.unfccc.int/Projects/DB/DNV-CUK1302613748.83/view>).

B.2.4. Changes to project design of registered project activity

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There are no changes to project design of the registered project activity.

B.2.5. Changes to start date of crediting period

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There are no changes to the start date of the crediting period.

B.2.6. Types of changes specific to afforestation or reforestation project activity

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Not applicable to the project activity.

SECTION C. Description of monitoring system

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Approved methodology ACM0002 Version 11, "Consolidated methodology for zero-emissions grid connected electricity generation from renewable sources", by CDM - Meth Panel is proposed to be used to monitor the emission reductions.

Monitoring System of Project Activity:

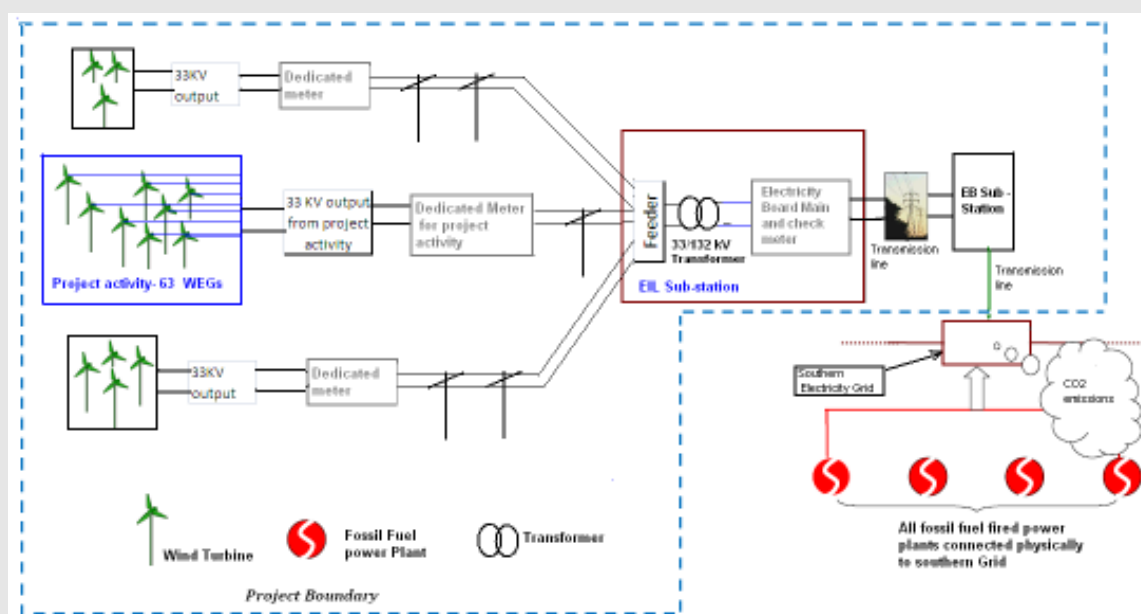
The PP has made clusters of Wind Energy Convertors (WEC's) at the project site for the purpose of metering. Each cluster has main and the check meter at 33 kV. All the clusters are exclusively connected to WECs of the project activity and no WECs of other project owners are connected to these clusters. Summation of meter reading for all the clusters (connecting 63 machines) will provide total electricity generated by the project activity.

The electricity supplied to the grid is metered from main and check meters at 33kV that are connected to the 63 turbines of the project activity. The electricity export and import for the project activity has been taken from the summation of the joint meter readings noted from the cluster meters (dedicated meters) connecting 63 turbines of the project activity.

In addition to this there are main and check meters at Enercon pooling substation (132kV). Transmission loss between metering point at 33kV and the metering point at 132kV at Enercon pooling substation is applied to the meter reading taken at meters connected at 33 KV for the project activity. Enercon pooling substation is connected to the machines of the project activity and the machines commissioned by the other project owners. Therefore transmission loss is applied to the project activity by the state utility as reflected in the JMR taken at 33kV level. The JMR is signed by the representatives of Enercon and the state utility.

METERING ARRANGEMENT:

A detailed line diagram of project activity is shown in below picture. Layout of Metering arrangement for project activity is as follows:-



Enercon is contracted for Operation and Maintenance of the project activity and provides the daily generation report to the Project proponent. The project proponent also maintains the records of daily generation report and joint meter report. The meter readings are noted in the form of joint meter report and are signed jointly by the representatives of Enercon and the state utility. From the above layout it is clear that the clusters meters (dedicated meters/ individual meters) of project activity and other customers are connected to the Enercon pooling sub-station (bulk metering point at 132 kV). Since the main and check meters (bulk meter) at 132 kV metering point at the ENERCON pooling substation is connected to the machines of the project activity and the machines commissioned by the other project developers, therefore in order to determine the net electricity supplied to the grid at 132 kV at the ENERCON substation, the state utility apply the apportioning of transmission loss to the meter reading recorded at the 33 KV. The total % of transmission loss for export between 132kV metering point at Enercon sub-station and all the WECs connected to sub-station is calculated by the state utility is endorsed / confirmed jointly by the representatives of Enercon and the state utility. The transmission loss applied to the project activity by the state utility is reflected in transmission loss calculation sheet signed by the representatives of Enercon and Discom.

Calculation of net electricity supplied to the grid by project activity:

Net Electricity exported to the grid is calculated by applying transmission loss to the meter readings taken at 33 kV metering point of the project activity.

The procedure for calculation of the transmission loss is as follows:

Each project developer has dedicated individual metering system at 33kV. Energy export ($X_{\text{Export}, N}$) and import ($X_{\text{Import}, N}$) is recorded for the individual developers at 33 KV metering point; Where N is number of project developers connected to 132 kV metering point of the ENERCON substation

Total % of transmission losses for export (Lep) are calculated as per following formula:

$$Lep (\%) = \frac{\{(X_{\text{Export},1} + X_{\text{Export},2} + X_{\text{Export},3} + \dots + X_{\text{Export},N}) - EGe\} * 100}{(X_{\text{Export},1} + X_{\text{Export},2} + X_{\text{Export},3} + \dots + X_{\text{Export},N})}$$

Where, EGe = Electricity export to the grid recorded at 132 kV (bulk meter) at the ENERCON pooling substation.

Value of Lep is calculated by state utility and would be sourced directly from the transmission loss calculation sheet.

Hence,

Electricity exported by project activity to grid after apportioning of transmission losses between 33kV metering point (Cluster meter) & 132kV metering point (Bulk meter)

$$EG_{\text{export}, y} = EG_{pe} * (1 - Lep (\%))$$

Where:

$EG_{\text{export}, y}$ = Electricity exported by project activity to grid after apportioning of transmission losses between 33kV metering point (Cluster meter) & 132kV metering point (Bulk metering point)

EG_{pe} = Electricity Export recorded at 33kV (JMR at 33kV metering point) cluster metering points connecting total 63 machines of the project activity.

Lep = Total percentage of Transmission loss for export between the metering point at 33 kV metering points (sum of all the WECs connected to Bulk metering point including non-project activity as well as project activity WECs) and the metering point at 132 kV at the ENERCON pooling substation.

The Joint meter reading noted at 33 KV metering location contains the following data:-

1. Electricity Export
2. Electricity Import

The electricity export and import by the project activity can be cross checked cross checked from the certified statement of electricity export and import signed by Discom/State Utility. It may be noted that energy export by the project activity will be import by the grid from the project activity and therefore electricity export by the project activity is denoted as import by the grid in the certified statement by the state utility. Similarly, energy import by the project activity will be export by the grid to the project activity and therefore electricity import by the project activity is denoted as export by the grid in the certified statement by the state utility.

Net Electricity supplied to the Grid is calculated as:

$$EG_{PJ,y} = EG_{\text{export}, y} - EG_{pi}$$

Where:

$EG_{PJ,y}$ = Net electricity supplied to the grid by the Project activity

$EG_{\text{export}, y}$ = Electricity exported by project activity to grid after apportioning of transmission losses between 33kV metering point (Cluster meter) & 132kV metering point (Bulk metering point)

EG_{pi} = Electricity Import recorded at 33kV (JMR at 33kV metering point) cluster metering points connecting total 63 machines of the project activity

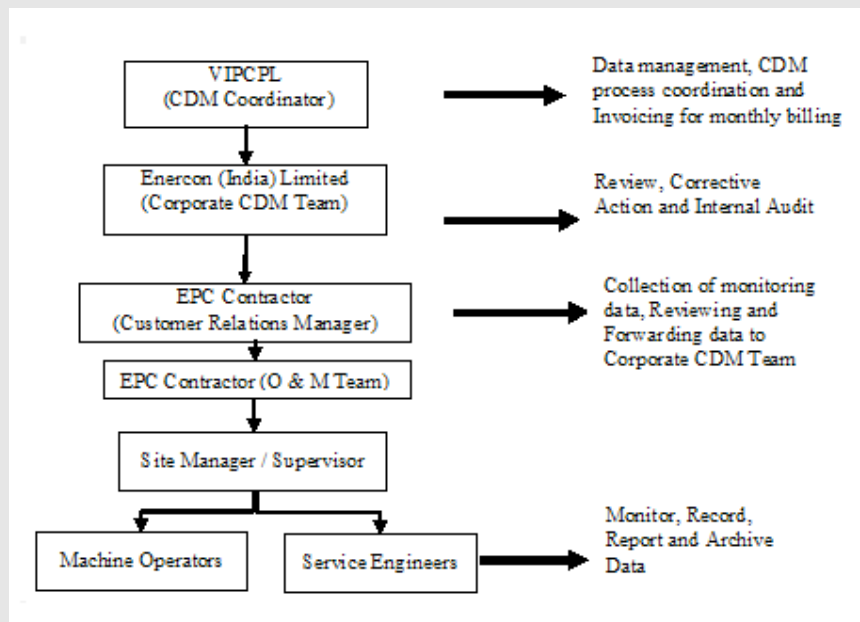
Metering Equipment: Metering system for the project activity consists of main and check meter. Both the meters are two-way trivector meters capable of recording import and export of electricity. The metering equipment is calibrated once in five years. Metering equipment is electronic trivector meter of 0.2% accuracy class.

Meter Readings: The monthly meter reading is taken jointly by the parties (Enercon and State utility) for every last month. At the conclusion of each meter reading an appointed representative of State Utility and Enercon sign a document indicating the number of Kilowatt-hours (kWh) indicated by the meter.

QA/QC Procedure: All the meters are calibrated/ tested once in five years. The calibration is done by the officials of the state utility. The accuracy of monitoring parameter is ensured by adhering to the calibration and testing of the metering equipment once in five years. Enercon provides the daily generation report to the Project proponent. In case the main meter(s) is found to operate outside the permissible limits, the main meter will be either replaced or calibrated immediately. Whenever a main meter goes defective, the consumption recorded by the Check meter will be referred.

The project proponent, Vaayu (India) Power Corporation Private Limited, keeping and monitoring the data for electricity generation and calibration reports post project implementation. Enercon (India) Limited is O&M contractor who has responsibility of maintaining electricity generation records, calibration records and maintenance of the WECs (Wind Energy Convertors). The project proponent also maintains the records of daily generation report and joint meter report.

The operational and management structure implemented for data monitoring is as follows:



Calibration Details: Metering system for the project activity consists of main and check meter. The metering equipment is calibrated once in five years. The details of calibration of meters installed at 33kV for measuring export and import by WECs installed phase wise are provided below:

SI N	Customer Name	Meter Type	Meter Serial No.	Accuracy Class	Calibration before monitoring period	Calibration Due date
1	Vaayu (India) Power Corporation Private Limited (Phase-1)	Main Meter	AP900318	0.2%	02/08/2010	01/08/2015
		Check Meter	AP900320	0.2%	02/08/2010	01/08/2015
2	Vaayu (India) Power Corporation Private Limited (Phase-2)	Main Meter	AP900327	0.2%	27/09/2010	26/09/2015
		Check Meter	AP900328	0.2%	27/09/2010	26/09/2015
3	Vaayu (India) Power Corporation Private Limited (Phase-3)	Main Meter	AP900314	0.2%	30/03/2011	29/03/2016

		Check Meter	AP900315	0.2%	30/03/2011	29/03/2016
4	Vaayu (India) Power Corporation Private Limited (Phase-4)	Main Meter	AP900338	0.2%	27/09/2010	26/09/2015
		Check Meter	AP900339	0.2%	27/09/2010	26/09/2015
5	Vaayu (India) Power Corporation Private Limited (Phase-5)	Main Meter	AP900319	0.2%	30/09/2010	29/09/2015
		Check Meter	AP900321	0.2%	30/09/2010	29/09/2015
6	Vaayu (India) Power Corporation Private Limited (Phase-6)	Main Meter	AP900329	0.2%	02/12/2010	01/12/2015
		Check Meter	AP900330	0.2%	02/12/2010	01/12/2015
7	Vaayu (India) Power Corporation Private Limited (Phase-7)	Main Meter	AP900331	0.2%	31/12/2010	30/12/2015
		Check Meter	AP900332	0.2%	31/12/2010	30/12/2015

The controller meter (also known as Local Control System (LCS) meter) located in the WEC tower do not require calibration as the energy readings of electricity generated at the LCS meter is cross verified by the energy calculated by inverting system installed in the WECs. In case there is any mismatch in the energy values recorded by the LCS meter and the energy values calculated by the inverting system; the machine will stop working and generate the error report. The operations and maintenance staff will calibrate the meter immediately and correction factor will be determined.

Project participants (PP) contracted Enercon (India) Limited for operation and maintenance of all the WECs. Enercon (India) Limited has implemented the management structure for managing the monitored data. Enercon is an ISO 9001:2000 certified Quality Management system from Germanischer Lloyd.

Training and maintenance requirements:

Training on the machine is an essential pre-requisite, to ensure necessary safety of man and machine. Further, in order to maximize the output from the WEGs, it is extremely essential, that the engineers and technicians understand the machines and keep them in good health. In order to ensure, that Enercon's service staffs is deft at handling technical snags on top of the turbine, the necessity of ensuring that they are capable of climbing the tower with absolute ease and comfort has been established. The Enercon Training Academy provides need-based training to meet the training requirements of Enercon projects. The training is contemporary, which results in imparting focused knowledge leading to value addition to the attitude and skills of all trainees. This ultimately leads to creativity in problem solving.

SECTION D. Data and parameters

D.1. Data and parameters fixed ex ante or at renewal of crediting period

Data/Parameter	$EF_{grid,OM,y}$
Unit	tCO ₂ e/MWh
Description	Operating Margin Emission Factor of Southern Regional Electricity Grid
Source of data	"CO ₂ Baseline Database for Indian Power Sector", version 5 published by the Central Electricity Authority, Ministry of Power, Government of India. The "CO ₂ Baseline Database for Indian Power Sector" is available at www.cea.nic.in The detailed information is available in Appendix 3.
Value(s) applied	0.98756
Purpose of data	Baseline emission calculations
Additional comment	None

Data/Parameter	$EF_{grid,BM,y}$
Unit	tCO ₂ e/MWh
Description	Build Margin Emission Factor of Southern Regional Electricity Grid

Source of data	“CO ₂ Baseline Database for Indian Power Sector” version 5 published by the Central Electricity Authority, Ministry of Power, Government of India. The “CO ₂ Baseline Database for Indian Power Sector” is available at www.cea.nic.in The detailed information is available in Appendix 3.		
Value(s) applied	0.81792		
Purpose of data	Baseline emission calculations		
Additional comment	None		

Data/Parameter	$EF_{grid,CM,y}$				
Unit	tCO ₂ e/MWh				
Description	Combined Margin Emission Factor of Southern Regional Electricity Grid				
Source of data	The “CO ₂ Baseline Database for Indian Power Sector” version 5 published by the Central Electricity Authority, Ministry of Power, Government of India. The “CO ₂ Baseline Database for Indian Power Sector” is available at www.cea.nic.in The detailed information is available in Appendix 3.				
Value(s) applied	In case of wind power projects default weights of 0.75 for $EF_{grid,OM}$ and 0.25 for $EF_{grid,BM}$ are applicable as per ACM0002. <table><tr><td>Combined Margin Emission Factor (EF_y or EF_{CM,y})</td><td>0.94515</td></tr></table>			Combined Margin Emission Factor (EF _y or EF _{CM,y})	0.94515
Combined Margin Emission Factor (EF _y or EF _{CM,y})	0.94515				
Purpose of data	Baseline emission calculations				
Additional comment	The value is calculated on ex-ante basis and it will remain same throughout the crediting period.				

D.2. Data and parameters monitored

(Copy this table for each piece of data and parameter.)

Data/Parameter	$EG_{PJ,y}$
Unit	MWh (Mega-watt hour)
Description	Net electricity supplied to the grid by the Project activity
Measured/Calculated /Default	Calculated
Source of data	Net electricity supplied to the grid by the Project activity calculated using the formula described in Section C.
Value(s) of monitored parameter	102272.103 MWh
Monitoring equipment	Calculated as per formulas better described under section C.
Measuring/Reading/Recording frequency	Monthly: The apportioning is done as per the procedure described in section C.
Calculation method (if applicable)	<p>Calculated using formula</p> $EG_{PJ,y} = EG_{export,y} - EG_{pi}$ <p>Refer section C for details and description of the above variables.</p>
QA/QC procedures	QA/QC procedures have been implemented by Discom/State utility pursuant to the provisions of the power purchase agreement except or otherwise explicitly stated in the PDD.
Purpose of data	Baseline Emissions calculations
Additional comment	None

Data/Parameter	$EG_{Export,y}$
Unit	MWh (Mega-Watt hour)
Description	Electricity exported by project activity to grid after apportioning of transmission losses between 33kV metering point (Cluster meter) & 132kV metering point (Bulk metering point)

Measured/Calculated /Default	Calculated
Source of data	Electricity exported by project activity calculated using the formula described in Section C.
Value(s) of monitored parameter	102321.403 MWh
Monitoring equipment	Calculated as per formulas better described under section C.
Measuring/Reading/Recording frequency	Monthly: The apportioning is done as per the procedure described in section C.
Calculation method (if applicable)	Calculated using formulae $EG_{\text{export, v}} = EG_{pe} * (1 - Lep \%)$ Refer section C for details and description of the above variables.
QA/QC procedures	Value of $EG_{\text{export, v}}$ can be crosschecked from certified statement given by state utility showing cost of export and import. It may be noted that energy export by the project activity will be import by the grid from the project activity and therefore electricity export by the project activity is denoted as import by the grid in the certified statement by the state utility. QA/QC procedures have been implemented by Discom/State utility pursuant to the provisions of the power purchase agreement except or otherwise explicitly stated in the PDD.
Purpose of data	Baseline Emissions calculations
Additional comment	None

Data/Parameter	EG_{pe}
Unit	MWh (Mega-Watt hour)
Description	Electricity Export recorded at 33kV (JMR at 33kV metering point) cluster metering points connecting total 63 machines of the project activity.
Measured/Calculated /Default	Measured
Source of data	Electricity export to the grid as per the joint meter reading recorded at cluster metering points.
Value(s) of monitored parameter	103366.900 MWh
Monitoring equipment	<p>Vaayu (India) Power Corporation Private Limited (Phase-1) Main Meter Serial Number- AP900318 Check Meter Serial Number- AP900320 Last date of Test – 02/08/2010 Validity of Test- 01/08/2015 (once in five years)</p> <p>Vaayu (India) Power Corporation Private Limited (Phase-2) Main Meter Serial Number- AP900327 Check Meter Serial Number- AP900328 Last date of Test – 25/09/2010 Validity of Test- 24/09/2015 (once in five years)</p> <p>Vaayu (India) Power Corporation Private Limited (Phase-3) Main Meter Serial Number- AP900314 Check Meter Serial Number- AP900315 Last date of Test – 30/03/2011 Validity of Test- 29/03/2016 (once in five years)</p> <p>Vaayu (India) Power Corporation Private Limited (Phase-4) Main Meter Serial Number- AP900338 Check Meter Serial Number- AP900339 Last date of Test – 27/09/2010 Validity of Test- 26/09/2015 (once in five years)</p> <p>Vaayu (India) Power Corporation Private Limited (Phase-5) Main Meter Serial Number- AP900319 Check Meter Serial Number- AP900321</p>

	<p>Last date of Test – 30/09/2010 Validity of Test- 29/09/2015 (once in five years)</p> <p>Vaayu (India) Power Corporation Private Limited (Phase-6) Main Meter Serial Number- AP900329 Check Meter Serial Number- AP900330 Last date of Test – 02/12/2010 Validity of Test- 01/12/2015 (once in five years)</p> <p>Vaayu (India) Power Corporation Private Limited (Phase-7) Main Meter Serial Number- AP900331 Check Meter Serial Number- AP900332 Last date of Test – 31/12/2010 Validity of Test- 30/12/2015 (once in five years)</p> <p>Type- Tri-vector Meter Accuracy Class-0.2% Frequency of Calibration- once in five years</p>
Measuring/Reading/Recording frequency	<p>Measuring frequency: Continuous Recording frequency: Monthly</p>
Calculation method (if applicable)	Not Applicable
QA/QC procedures	<p>Value of EG_{pe} can be cross checked from transmission loss calculation sheet signed by the representatives of Enercon and Discom.</p> <p>The meters will be calibrated once in five years by the state utility. Refer Section C for an illustration of the provisions for QA/QC procedures.</p>
Purpose of data	Baseline Emissions calculations
Additional comment	None

Data/Parameter	EG_{pi}
Unit	MWh (Mega-Watt hour)
Description	Electricity Import recorded at 33kV (JMR at 33kV metering point) cluster metering points connecting total 63 machines of the project activity.
Measured/Calculated /Default	Measured
Source of data	Electricity import from the grid as per the joint meter reading recorded at cluster metering point.
Value(s) of monitored parameter	49.300 MWh
Monitoring equipment	<p>Vaayu (India) Power Corporation Private Limited (Phase-1) Main Meter Serial Number- AP900318 Check Meter Serial Number- AP900320 Last date of Test – 02/08/2010 Validity of Test- 01/08/2015 (once in five years)</p> <p>Vaayu (India) Power Corporation Private Limited (Phase-2) Main Meter Serial Number- AP900327 Check Meter Serial Number- AP900328 Last date of Test – 25/09/2010 Validity of Test- 24/09/2015 (once in five years)</p> <p>Vaayu (India) Power Corporation Private Limited (Phase-3) Main Meter Serial Number- AP900314 Check Meter Serial Number- AP900315 Last date of Test – 30/03/2011 Validity of Test- 29/03/2016 (once in five years)</p> <p>Vaayu (India) Power Corporation Private Limited (Phase-4) Main Meter Serial Number- AP900338</p>

	<p>Check Meter Serial Number- AP900339 Last date of Test – 27/09/2010 Validity of Test- 26/09/2015 (once in five years)</p> <p>Vaayu (India) Power Corporation Private Limited (Phase-5) Main Meter Serial Number- AP900319 Check Meter Serial Number- AP900321 Last date of Test – 30/09/2010 Validity of Test- 29/09/2015 (once in five years)</p> <p>Vaayu (India) Power Corporation Private Limited (Phase-6) Main Meter Serial Number- AP900329 Check Meter Serial Number- AP900330 Last date of Test – 02/12/2010 Validity of Test- 01/12/2015 (once in five years)</p> <p>Vaayu (India) Power Corporation Private Limited (Phase-7) Main Meter Serial Number- AP900331 Check Meter Serial Number- AP900332 Last date of Test – 31/12/2010 Validity of Test- 30/12/2015 (once in five years)</p> <p>Type- Tri-vector Meter Accuracy Class-0.2% Frequency of Calibration- once in five years</p>
Measuring/Reading/Recording frequency	Measuring frequency: Continuous Recording frequency: Monthly
Calculation method (if applicable)	Not Applicable
QA/QC procedures	<p>Value of EGpi can be crosschecked from certified statement given by state utility showing cost of export and import. It may be noted that energy import by the project activity will be export by the grid to the project activity and therefore electricity import by the project activity is denoted as export by the grid in the certified statement by the state utility.</p> <p>The meters will be calibrated once in five years by the state utility. Refer Section C for an illustration of the provisions for QA/QC procedures.</p>
Purpose of data	Baseline Emissions calculations
Additional comment	None
Data/Parameter	EGe
Unit	MWh (Mega-Watt hour)
Description	Electricity Export recorded at 132 kV meters (main and check) at ENERCON pooling substation connecting machines of the project activity and machines commissioned by the other project developers.
Measured/Calculated /Default	Measured
Source of data	Electricity export to the grid as per the joint meter reading recorded at 132 KV of the ENERCON pooling substation (Bulk metering point).
Value(s) of monitored parameter	151105.200 MWh
Monitoring equipment	<p>Vaayu (India) Power Corporation Private Limited (Phase-1, Phase 4 and Phase 7) Main Meter Serial Number- 5341444 Check Meter Serial Number- 5342869 Last date of Test – 31/03/2010 Validity of Test- 30/03/2015 (once in five years) Old check meter (5342869) was replaced with new check meter (10286994) on 03/08/2011 due to defect in meter scrolling. Last date of Test – 03/08/2011 Validity of Test- 02/08/2016 (once in five years)</p>

	<p>All the Vaayu phases were connected to above mentioned single 132 KV bulk metering point at S/S. Due to increase in connected load at S/S two 132 KV bulk metering point were used to measure electricity generation from the month June, 2011 onwards. The details of second metering point is provided below:</p> <p>Vaayu (India) Power Corporation Private Limited (Phase-2, Phase 3, Phase 5 and Phase 6) Main Meter Serial Number- 5341380 Check Meter Serial Number- 5341442 Last date of Test – 16/05/2011 Validity of Test- 15/05/2016 (once in five years)</p> <p>Main and check meter were replaced with following new meters on 26 August, 2011 due to defect in meter scrolling. Main Meter Serial Number- 11070263 Check Meter Serial Number- 11070295 Last date of Test – 26/08/2011 Validity of Test- 25/08/2016 (once in five years)</p> <p>Accuracy Class-0.2% Frequency of Calibration- once in five years</p>
Measuring/Reading/Recording frequency	Measuring frequency: Continuous Recording frequency: Monthly
Calculation method (if applicable)	Not Applicable
QA/QC procedures	Value of EGe can be cross checked from transmission loss calculation sheet signed by the representatives of Enercon and Discom. The meters will be calibrated once in five years by the state utility. Refer Section C for an illustration of the provisions for QA/QC procedures.
Purpose of data	Baseline Emissions calculations
Additional comment	None

Data/Parameter	L_{ep}
Unit	MWh (Mega-watt hour)
Description	Total percentage of Transmission loss for export between the metering point at 33 kV metering points (sum of all the WECs connected to Bulk metering point including non-project activity as well as project activity WECs) and the metering point at 132 kV at the ENERCON pooling substation.
Measured /Calculated /Default	Calculated as per formulas better described under section C.
Source of data	Transmission Loss will directly applied from the joint meter reading for the project activity.
Value(s) of monitored parameter	Calculated as per formulas better described under section C. Monthly values of L _{ep} are provided in appendix 4 of monitoring report.
Monitoring equipment	Not Applicable
Measuring/ Reading/ Recording frequency	Monthly. Calculations are based on procedure described in section C.
Calculation method (if applicable)	<p>Total % of transmission losses for export (L_{ep}) are calculated as per following formula:</p> $L_{ep} (\%) = \frac{\{(X_{Export,1} + X_{Export,2} + X_{Export,3} + \dots + X_{Export,N}) - EGe\}}{(X_{Export,1} + X_{Export,2} + X_{Export,3} + \dots + X_{Export,N})} \times 100$ <p>Refer section C for details and description of the above variables.</p>
QA/QC procedures	The value is calculated. Please refer Section C for QA/QC procedures.
Purpose of data	Baseline Emissions calculations
Additional comment	None

D.3. Implementation of sampling plan

>>

Not applicable to the project activity.

SECTION E. Calculation of emission reductions or GHG removals by sinks**E.1. Calculation of baseline emissions or baseline net GHG removals by sinks**

>>

Baseline emissions include only CO₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The methodology assumes that all project electricity generation above baseline levels would have been generated by existing grid-connected power plants and the addition of new grid-connected power plants. The baseline emissions are to be calculated as follows:

$$BE_y = EG_{PJ,y} * EF_{grid,CM,y}$$

Where:

BE_y = Baseline emissions in year y (tCO₂/yr)

EG_{PJ,y} = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/yr)

EF_{grid,CM,y} = Combined margin CO₂ emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (tCO₂e/MWh)

Accordingly:

Baseline emissions calculation for the period 26/03/2012 to 25/12/2012 (Including first and last day) is as follows:

$$\begin{aligned} BE_y &= 102272103 \text{ (kWh)} * 0.94515 \text{ (tCO}_2\text{e/MWh)} / 1000 \\ &= 96,662 \text{ tCO}_2 \text{ e} \end{aligned}$$

The details of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity is provided in Appendix 4.

E.2. Calculation of project emissions or actual net GHG removals by sinks

>>

The project activity involves harnessing of wind energy and its conversion to electricity. Hence according to ACM0002 Version 11, there are no project emissions in the project activity

$$PE_y = 0.$$

E.3. Calculation of leakage

>>

As per ACM0002 Version 11, no leakage has been considered for the calculation of emission factor

$$LE_y = 0.$$

E.4. Summary of calculation of emission reductions or net anthropogenic GHG removals by sinks

Item	Baseline emissions or baseline net GHG removals by sinks (t CO ₂ e)	Project emissions or actual net GHG removals by sinks (t CO ₂ e)	Leakage (t CO ₂ e)	Emission reductions or net anthropogenic GHG removals by sinks (t CO ₂ e)
25/04/2011 to 25/03/2012 (Inclusive of both days)	96,662	0	0	96,662
Total	96,662	0	0	96,662

E.5. Comparison of actual emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

Item	Values estimated in ex-ante calculation of registered PDD	Actual values achieved during this monitoring period
Emission reductions or GHG removals by sinks (t CO ₂ e)	70,047	96,662

E.6. Remarks on difference from estimated value in registered PDD

>>

The estimated annual emission reductions as per the registered PDD corresponding to the current monitoring period are 70,047 tCO₂e. The actual emission reductions are 96,662 which are 38% more than the estimated emission reduction. This difference is due to the fact that annual wind cycle has not been completely covered in the current monitoring period and three months with lean wind availability have not been included.

E.7. Actual emission reductions or net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 onwards

Item	Actual values achieved up to 31 December 2012	Actual values achieved from 1 January 2013 onwards
Emission reductions or GHG removals by sinks (t CO ₂ e)	96,662	0

Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
03.1	2 January 2013	Editorial revision to correct table in section E.5.
03.0	3 December 2012	Revision required to introduce a provision on reporting actual emission reductions or net anthropogenic GHG removals by sinks for the period up to 31 December 2012 and the period from 1 January 2013 onwards (EB70, Annex 11).
02.0	13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the monitoring report form" (EB 66, Annex 20).
01	28 May 2010	EB 54, Annex 34. Initial adoption.
Decision Class: Regulatory		
Document Type: Form		
Business Function: issuance		
Keywords: monitoring report, performance monitoring		

Appendix 1: Details of Physical Location (Latitude and Longitude)

Sl. No.	WEC Location No.	Latitude			Longitude		
		DEG	MIN	SEC	DEG	MIN	SEC
1	1	14	59	10.3	78	5	17.5
2	2	14	59	17.7	78	5	16.5
3	3	14	59	24.7	78	5	14.9
4	4	14	59	30.0	78	5	14.0
5	5	14	59	39.0	78	5	16.5
6	6	14	59	46.6	78	5	18.3
7	7	14	59	51.8	78	5	0.7
8	8	14	59	58.2	78	4	59.8
9	9	15	0	1.3	78	4	44.5
10	10	14	59	37.2	78	5	1.8
11	11	14	59	43.6	78	4	51.9
12	12	14	59	47.5	78	4	42.5
13	13	14	59	52.5	78	4	37.0
14	14	14	59	52.5	78	4	21.6
15	15	14	59	57.8	78	4	16.3
16	16	15	0	3.2	78	4	11.2
17	17	15	0	9.5	78	4	4.4
18	21	15	0	18.2	78	4	45.5
19	22	15	0	25.6	78	4	39.3
20	23	15	0	30.1	78	4	22.0
21	24	15	0	42.0	78	3	52.3
22	25	15	0	33.2	78	3	42.2
23	26	15	0	39.6	78	3	38.6
24	27	15	0	47.0	78	3	35.2
25	28	15	0	51.2	78	3	29.4
26	29	15	0	57.0	78	3	25.
27	30	15	1	25.9	78	4	50.2
28	31	15	1	32.1	78	4	47.3
29	32	15	1	36.5	78	4	39.4
30	33	15	1	41.9	78	4	39.2
31	34	15	1	43.5	78	4	53.8
32	35	15	1	38.1	78	4	55.4
33	43	15	2	58.6	78	2	57.9
34	43A	15	2	50.4	78	2	59.3
35	61	15	3	22.2	78	2	33.8
36	69	15	4	32.3	78	1	39.2
37	70	15	4	38.5	78	1	38.0
38	71	15	4	44.7	78	1	38.4
39	72	15	4	49.7	78	1	32.0
40	73	15	4	55.4	78	1	34.4
41	74	15	5	2.5	78	1	50.6
42	85	15	3	28.7	78	2	31.0
43	86	15	3	35.6	78	2	29.0

F-CDM-MR

44	90	15	3	6.5	78	2	43.6
45	A1	15	4	32.6	78	2	26.8
46	A2	15	4	40.0	78	2	22.4
47	A3	15	4	28.1	78	2	42.3
48	A4	15	4	40.5	78	2	33.5
49	A5	15	4	54.0	78	2	17.2
50	A6	15	5	7.4	78	2	21.8
51	W1	15	2	37.0	77	59	16.0
52	W2	15	2	29.9	77	59	15.7
53	W3	15	2	24.2	77	59	18.6
54	W4	15	2	13.8	77	59	17.1
55	W5	15	2	5.9	77	59	20.8
56	W6	15	2	0.5	77	59	26.5
57	W7	15	1	49.3	77	59	36.4
58	W8	15	1	41.8	77	59	44.8
59	W9	15	1	36.5	77	59	50.5
60	W10	15	2	3.9	77	59	52.3
61	W11	15	2	10.8	77	59	56.7
62	W12	15	2	21.0	77	59	34.8
63	W13	15	1	55.4	77	59	29.9

Appendix 2: Commissioning Schedule

SN	Name	Village Name	District	Commissioning Date	Machine No	Location No
1	Vaayu (India) Power Corporation Private Limited (Phase-1)	Petnikota	Kurnool	02.08.2010	8572	74
2		Petnikota	Kurnool	02.08.2010	8568	73
3		Petnikota	Kurnool	02.08.2010	8566	72
4		Petnikota	Kurnool	02.08.2010	8574	71
5		Petnikota	Kurnool	02.08.2010	8579	70
6		Petnikota	Kurnool	02.08.2010	8581	69
7	Vaayu (India) Power Corporation Private Limited (Phase-2)	Thummalapenta	Kurnool	24.12.2010	8582	43
8		Thummalapenta	Kurnool	24.12.2010	8587	43A
9		Petnikota	Kurnool	25.09.2010	8593	61
10		Petnikota	Kurnool	25.09.2010	8594	86
11		Petnikota	Kurnool	25.09.2010	8595	85
12		Petnikota	Kurnool	04.05.2011	8828	90
13	Vaayu (India) Power Corporation Private Limited (Phase-3)	Petnikota	Kurnool	30.03.2011	9052	A1
14		Petnikota	Kurnool	30.03.2011	8777	A2
15		Petnikota	Kurnool	30.03.2011	8814	A4
16		Petnikota	Kurnool	30.03.2011	8810	A3
17		Petnikota	Kurnool	30.03.2011	8817	A5
18		Petnikota	Kurnool	04.05.2011	9047	A6
19	Vaayu (India) Power Corporation Private Limited (Phase-4)	Thummalapenta	Kurnool	07.02.2011	8608	28
20		Thummalapenta	Kurnool	28.09.2010	8609	27
21		Thummalapenta	Kurnool	28.09.2010	8610	26
22		Chintalayapalli	Kurnool	28.09.2010	8611	25
23		Chintalayapalli	Kurnool	28.09.2010	8613	24
24		Abudullapuram	Kurnool	28.09.2010	8633	17
25		Abudullapuram	Kurnool	28.09.2010	8630	16
26		Abudullapuram	Kurnool	28.09.2010	8627	15
27		Abudullapuram	Kurnool	28.09.2010	8625	14
28		Abudullapuram	Kurnool	12.11.2010	8638	13
29		Abudullapuram	Kurnool	12.11.2010	8637	12
30		Abudullapuram	Kurnool	12.11.2010	8605	11
31		Abudullapuram	Kurnool	12.11.2010	8599	10
32		Thummalapenta	Kurnool	24.12.2010	8607	29
33	Vaayu (India) Power Corporation Private Limited (Phase-5)	Chintalayapalli	Kurnool	30.09.2010	8614	30
34		Chintalayapalli	Kurnool	30.09.2010	8617	31
35		Chintalayapalli	Kurnool	30.09.2010	8618	32
36		Chintalayapalli	Kurnool	30.09.2010	8619	33
37		Chintalayapalli	Kurnool	30.09.2010	8620	35
38		Chintalayapalli	Kurnool	30.09.2010	8622	34
39	Vaayu (India) Power Corporation Private Limited (Phase-6)	Abudullapuram	Kurnool	02.12.2010	8604	9
40		Abudullapuram	Kurnool	02.12.2010	8603	8
41		Abudullapuram	Kurnool	02.12.2010	8602	7

F-CDM-MR

42		Abudullapuram	Kurnool	02.12.2010	8601	6
43		Abudullapuram	Kurnool	02.12.2010	8600	5
44		Abudullapuram	Kurnool	02.12.2010	8941	4
45		Abudullapuram	Kurnool	02.12.2010	8597	3
46		Abudullapuram	Kurnool	02.12.2010	8596	2
47		Abudullapuram	Kurnool	02.12.2010	8589	1
48		Abudullapuram	Kurnool	02.12.2010	8831	23
49		Abudullapuram	Kurnool	02.12.2010	8639	22
50		Abudullapuram	Kurnool	02.12.2010	8830	21
51	Vaayu (India) Power Corporation Private Limited (Phase-7)	Venkatampalli	Anantapur	31.12.2010	9044	W6
52		Venkatampalli	Anantapur	31.12.2010	8775	W7
53		Venkatampalli	Anantapur	31.12.2010	8980	W13
54		Venkatampalli	Anantapur	31.12.2010	8992	W12
55		Bhogasamudram	Anantapur	31.12.2010	9006	W8
56		Bhogasamudram	Anantapur	31.12.2010	8988	W9
57		Venkatampalli	Anantapur	31.12.2010	8773	W4
58		Venkatampalli	Anantapur	31.12.2010	8979	W5
59		Venkatampalli	Anantapur	24.01.2011	8811	W1
60		Venkatampalli	Anantapur	24.01.2011	8802	W2
61		Venkatampalli	Anantapur	24.01.2011	8803	W3
62		Bhogasamudram	Anantapur	24.01.2011	8986	W10
63		Bhogasamudram	Anantapur	24.01.2011	8987	W11

Appendix 3: Baseline Information

The Operating Margin data for the most recent three years and the Build Margin data for the Southern Region Electricity Grid as published in the CEA database are as follows:

Simple Operating Margin

	Southern Grid (tCO ₂ e/MWh)
Simple Operating Margin – 2006-07	0.99912
Simple Operating Margin – 2007-08	0.99062
Simple Operating Margin – 2008-09	0.97293
Average Operating Margin of last three years	0.98756

Build Margin

	Southern Grid (tCO ₂ e/MWh)
Build Margin- 2008-09	0.81792

Combined Margin Calculations

	Weights	Southern Grid (tCO ₂ e/MWh)
Operating Margin	0.75	0.98756
Build Margin	0.25	0.81792
Combined Margin		0.94515

Detailed information on calculation of Operating Margin Emission Factor and Build Margin Emission Factor is available at www.cea.nic.in.

APPENDIX 4: GENERATION DETAILS

		Net electricity supplied to the grid (kWh)	Electricity exported to grid after apportioning of transmission Losses (kWh)	Electricity Export recorded at 33kV (kWh)	Electricity Import recorded at 33kV (kWh)	Electricity Export recorded at 132 Kv (kWh) *		Transmission losses (%) applied directly from Joint Meter Reading Sheets
Month	Phase	EG _{PJ,y}	EG _{Export,y}	EG _{pe}	EG _{pi}	EG _e		Lep
		Calculated	As required by monitoring plan of registered PDD, Calculated using formula EG _{export, y} = EG _{pe} * (1- Lep (%))	Joint Meter Reading Sheets	Joint Meter Reading Sheets	Joint Meter Reading Sheets		Joint Meter Reading Sheets (Calculated)
Apr-12	Vaayu (India) Power Corporation Private Limited (Phase-1)	453279	454379	463300	1100	4137000	For Phase 1,4 and 7	1.925
	Vaayu (India) Power Corporation Private Limited (Phase-2)	357057	358157	361600	1100			0.952
	Vaayu (India) Power Corporation Private Limited (Phase-3)	409056	410256	414200	1200			0.952
	Vaayu (India) Power Corporation Private Limited (Phase-4)	1021707	1023507	1043600	1800			1.925
	Vaayu (India) Power Corporation Private Limited (Phase-5)	521970	523270	528300	1300	2917000	For Phase 2,3,5 and 6	0.952
	Vaayu (India) Power Corporation	960651	962151	971400	1500			0.952

	Private Limited (Phase-6)							
	Vaayu (India) Power Corporation Private Limited (Phase-7)	761586	764786	779800	3200			1.925
May-12	Vaayu (India) Power Corporation Private Limited (Phase-1)	721871	722671	739000	800	7356000	For Phase 1,4 and 7	2.210
	Vaayu (India) Power Corporation Private Limited (Phase-2)	612974	613074	619900	800			1.101
	Vaayu (India) Power Corporation Private Limited (Phase-3)	755777	756477	764900	700			1.101
	Vaayu (India) Power Corporation Private Limited (Phase-4)	1850058	1851858	1893700	1800			2.210
	Vaayu (India) Power Corporation Private Limited (Phase-5)	891566	892266	902200	700	5259000	For Phase 2,3,5 and 6	1.101
	Vaayu (India) Power Corporation Private Limited (Phase-6)	1696600	1697600	1716500	1000			1.101
	Vaayu (India) Power Corporation Private Limited (Phase-7)	1227132	1228932	1256700	1800			2.210
Jun-12	Vaayu (India) Power Corporation Private Limited	2055216	2055416	2080500	200	12891000	For Phase 1,4 and 7	1.206

	(Phase-1)							
	Vaayu (India) Power Corporation Private Limited (Phase-2)	2034387	2034487	2057700	100			1.128
	Vaayu (India) Power Corporation Private Limited (Phase-3)	1769510	1769610	1789800	100			1.128
	Vaayu (India) Power Corporation Private Limited (Phase-4)	4896045	4896445	4956200	400			1.206
	Vaayu (India) Power Corporation Private Limited (Phase-5)	2296299	2296399	2322600	100			1.128
	Vaayu (India) Power Corporation Private Limited (Phase-6)	4227760	4228060	4276300	300	13773000	For Phase 2, 3, 5 and 6	1.128
	Vaayu (India) Power Corporation Private Limited (Phase-7)	3547996	3548396	3591700	400			1.206
Jul-12	Vaayu (India) Power Corporation Private Limited (Phase-1)	2153766	2153866	2185600	100			1.452
	Vaayu (India) Power Corporation Private Limited (Phase-2)	1800881	1800981	1815500	100	20210400	For Phase 1, 4 and 7	0.800
	Vaayu (India) Power Corporation Private Limited	1721719	1721819	1735700	100			0.800

F-CDM-MR

	(Phase-3)							
	Vaayu (India) Power Corporation Private Limited (Phase-4)	4592730	4592930	4660600	200			1.452
	Vaayu (India) Power Corporation Private Limited (Phase-5)	2151256	2151356	2168700	100			0.800
	Vaayu (India) Power Corporation Private Limited (Phase-6)	4048759	4048859	4081500	100	12882000	For Phase 2, 3, 5 and 6	0.800
	Vaayu (India) Power Corporation Private Limited (Phase-7)	3369847	3370047	3419700	200			1.452
Aug- 12	Vaayu (India) Power Corporation Private Limited (Phase-1)	2139444	2139544	2156200	100			0.772
	Vaayu (India) Power Corporation Private Limited (Phase-2)	1821831	1821931	1827100	100			0.283
	Vaayu (India) Power Corporation Private Limited (Phase-3)	1925337	1925437	1931900	0	21011400	For Phase 1, 4 and 7	0.283
	Vaayu (India) Power Corporation Private Limited (Phase-4)	4894594	4894894	4933000	300			0.772
	Vaayu (India) Power Corporation Private Limited	2436986	2437086	2444000	100	14079000	For Phase 2, 3, 5 and 6	0.283

	(Phase-5)							
	Vaayu (India) Power Corporation Private Limited (Phase-6)	4512697	4512897	4525700	200			0.283
	Vaayu (India) Power Corporation Private Limited (Phase-7)	3501537	3502037	3529300	500			0.772
Sep-12	Vaayu (India) Power Corporation Private Limited (Phase-1)	1639594	1639694	1655800	100	15262200	For Phase 1, 4 and 7	0.973
	Vaayu (India) Power Corporation Private Limited (Phase-2)	1186033	1186133	1197400	100			0.941
	Vaayu (India) Power Corporation Private Limited (Phase-3)	1363050	1363250	1376200	200			0.941
	Vaayu (India) Power Corporation Private Limited (Phase-4)	3733366	3733726	3770400	360			0.973
	Vaayu (India) Power Corporation Private Limited (Phase-5)	1773947	1774147	1791000	200	9675000	For Phase 2, 3, 5 and 6	0.941
	Vaayu (India) Power Corporation Private Limited (Phase-6)	3128974	3129374	3159100	400			0.941
	Vaayu (India) Power Corporation Private Limited	2391904	2392104	2415600	200			0.973

	(Phase-7)							
Oct-12	Vaayu (India) Power Corporation Private Limited (Phase-1)	477834	478834	483000	1000	4246200	For Phase 1, 4 and 7	0.862
	Vaayu (India) Power Corporation Private Limited (Phase-2)	364433	365733	367100	1300			0.372
	Vaayu (India) Power Corporation Private Limited (Phase-3)	481197	482297	484100	1100			0.372
	Vaayu (India) Power Corporation Private Limited (Phase-4)	1004103	1006543	1015300	2440			0.862
	Vaayu (India) Power Corporation Private Limited (Phase-5)	481097	482297	484100	1200	3077000	For Phase 2, 3, 5 and 6	0.372
	Vaayu (India) Power Corporation Private Limited (Phase-6)	999854	1002054	1005800	2200			0.372
	Vaayu (India) Power Corporation Private Limited (Phase-7)	727342	730842	737200	3500			0.862
Nov-12	Vaayu (India) Power Corporation Private Limited (Phase-1)	456237	456837	463000	600	4329000	For Phase 1, 4 and 7	1.331
	Vaayu (India) Power Corporation Private Limited	379283	379883	383700	600			0.995

F-CDM-MR

	(Phase-2)							
	Vaayu (India) Power Corporation Private Limited (Phase-3)	421559	422159	426400	600			0.995
	Vaayu (India) Power Corporation Private Limited (Phase-4)	1132008	1133608	1148900	1600			1.331
	Vaayu (India) Power Corporation Private Limited (Phase-5)	525513	526213	531500	700			0.995
	Vaayu (India) Power Corporation Private Limited (Phase-6)	1045583	1046883	1057400	1300		For Phase 2, 3, 5 and 6	0.995
	Vaayu (India) Power Corporation Private Limited (Phase-7)	795145	797245	808000	2100			1.331
Dec- 12	Vaayu (India) Power Corporation Private Limited (Phase-1)	387766	387966	392000	200			1.029
	Vaayu (India) Power Corporation Private Limited (Phase-2)	296599	296899	299200	300		For Phase 1, 4 and 7	0.769
	Vaayu (India) Power Corporation Private Limited (Phase-3)	376779	376979	379900	200			0.769
	Vaayu (India) Power Corporation Private Limited	797103	798003	806300	900			1.029

F-CDM-MR

(Phase-4)							
Vaayu (India) Power Corporation Private Limited (Phase-5)	415377	415877	419100	500			0.769
Vaayu (India) Power Corporation Private Limited (Phase-6)	761196	761896	767800	700		For Phase 2, 3, 5 and 6	0.769
Vaayu (India) Power Corporation Private Limited (Phase-7)	589846	591946	598100	2100			1.029
Total	102272103	102321403	103366900	49300	151105200		